

REMARKS

Claims 23-24, 26-29, and 31-44 remain in this application. Claims 23, 26, 31, 32 and 42 were amended in this response. Claims 25 and 30 were cancelled, without prejudice. No new matter has been introduced as a result of the amendments.

The drawings are objected to under 37 C.F.R. §1.83(a) as not showing every feature of the invention specified in the claims. The objection then goes further to list almost every element recited in the claims, apparently without reading the specification and drawings. While a few of the features have been amended in the drawings, the Applicant virulently objects to this kind of Examination. At a minimum, the drawings and the disclosure should be reviewed by the Examiner before generating a veritable laundry list of features asserted as undisclosed.

For example, the transfer function (phase and transfer) is described in the amended specification at the bottom of page 46 under an exemplary embodiment:

In the channel estimation unit KS, a first evaluating device UF is arranged via which the frequency-selective amplitude-specific transmission channel characteristics of the transmission medium "radio channel" are determined from the receive symbols $esl...n$ conducted to the channel estimation unit KS; i.e., the frequency-selective amplitude distortions (also called amplitude response or absolute value of the transfer function of the radio channel $|H(f)|$ caused by the transmission medium "radio channel" are determined for each subcarrier.

A cursory glance at FIG. 2 clearly shows transfer function "H(f)" between the estimation unit (KS) and equalizer unit (EZ).

Regarding the pilot signal element, the amended specification describes the following in regard to an exemplary embodiment at the bottom of page 50 (lines 20+):

To provide for a determination of the frequency-selective transmission characteristics of the transmission medium "radio channel", also called channel estimation in the text which follows, at the receiving end, the modulator MOD

arranged in the base station BS is designed in such a manner that a particular number of the transmit symbols $ss1...n$ present at the n outputs $AM1...n$ of the modulator MOD are designed as pilot symbols with defined reference amplitude; i.e., some of the subcarriers of the OFDM signal sd to be transmitted in the downstream direction are used for transmitting in each case a pilot tone or pilot signal having a defined reference amplitude.

FIG. 1 clearly shows transmit symbols $ss1...n$ in transmission unit SOB, and FIG. 2 also illustrates this element.

Regarding average computation, the amended specification provides the following at the bottom of page 57 (lines 20+) under an exemplary embodiment:

Advantageously, in addition to the directly adjacent subcarriers, the adjoining subcarriers in the frequency range are also taken into consideration for the determination of the frequency-selective transmission characteristics of the transmission medium or the channel estimation at the transmitting end performed in an OFDM receiving unit EON, EOB; i.e., an average is formed over determined transmission characteristics of a number of subcarriers arranged adjacently in the frequency range. The averaging has the advantage that the number of estimated values, and thus the accuracy of the channel estimation at the transmitting end is two-dimensionally increased without the spectral distance from adjacent subcarriers becoming too great.

Elements EON and EOB are clearly shown in FIGs. 2 and 1, respectively.

Regarding storing, the amended specification provides the following at the bottom of page 58 (lines 7-11) under an exemplary embodiment:

Implementation of this variant of the embodiment requires the storing of the receive symbols $es1...n$ received successively in time or storing of the frequency-selective transmission characteristics determined in each case, in a memory, not shown, which is arranged in the first or second transceiver unit SEE1, 2.

Thus, the memory is part of transceiver units SEE1 and 2, shown in FIGs. 1 and 2. Both units are designated as block diagrams, and the use of memory devices are presumed and are well-known in the art and are not essential for an understanding of the invention. Accordingly, the drawing designation complies with 37 C.F.R. §1.83(a).

Regarding OFDM, the amended specification provides the following at the bottom of page 43 (last paragraph) under an exemplary embodiment:

The first transceiver unit SEE1 shown in Figure 1 has a data input ED to which a digital serial data stream dsd to be transmitted from the higher-level communication network to the decentralized wireless network terminating units RNT is conducted. The data input ED is connected to an input EO of an OFDM transmit unit SOB which is arranged in the first transceiver unit SEE1

FIG. 1 clearly shows SOB marked on the drawing.

Regarding adaptor, the amended specification provides the following disclosure on page 48 (lines 15-22) under an exemplary embodiment:

The channel equalizer unit EZ has capabilities for adapting the transmit symbols ssl...n formed by the modulator MOD and forwarded to the channel equalizer unit EZ to the frequency-selective amplitude-specific transmission channel characteristics of the transmission medium "radio channel" determined in the OFDM receiving unit EON (also called "equalization" of the amplitude response" or "amplitude equalization"); i.e., the amplitudes of the frequency-selective transmit symbols ssl...n are corrected in dependence on the information signal transmitted to the control input ESS.

Channel equalizer EZ is clearly marked in FIGs. 1 and 2.

Regarding threshold SNR, the amended specification provides the following on page 53, line 26 – page 54, line 10 under an exemplary embodiment:

the channel estimation unit KS of the OFDM receiving unit EON arranged in the decentralized network terminating unit RNT has a further evaluating device SN for detecting the subcarrier-individual S/N ratios of the respective subcarriers of the received OFDM signal sd. The subcarrier-individual S/N ratios detected in each case with the aid of the further evaluating device S/N are additionally transmitted, in addition to the detected amplitude-specific transmission characteristics $H(f)$ of the transmission medium FK with the aid of the information signal is via the link line VL to the OFDM transmitting unit SON arranged in the decentralized network terminating unit RNT or, respectively, to the channel equalizer unit EZ arranged there.

In the channel equalizer unit EZ a further correction device, (not shown here), is arranged via which the subcarriers having unfavorable S/N ratios or the subcarriers having an S/N ratio which is measured below a limit value, are deactivated in dependence on the S/N ratios transmitted to the control input ESS, and thus are not used for information transmission.

These features are clearly marked in FIG. 2. A further correction device (1/HF2) has been added to the drawings to further the prosecution of this case.

Regarding the term evaluator, the drawings have been amended to include the element "UF" in the channel estimation unit KS. This feature is disclosed in the amended specification at the bottom of page 45 (lines 24-27) under an exemplary embodiment:

In the channel estimation unit KS, a first evaluating device UF is arranged via which the frequency-selective amplitude-specific transmission channel characteristics of the transmission medium "radio channel" are determined from the receive symbols esl...n conducted to the channel estimation unit KS

The top of page 46 similarly provides:

Furthermore, the S/N ratio is determined for each subcarrier from the incoming receive symbols $es1 \dots n$ via a further evaluating device SN arranged in the channel estimation unit KS.

Regarding the sending characteristics, the amended specification at the bottom of page 46 discloses under an exemplary embodiment:

In the channel estimation unit KS, a first evaluating device UF is arranged via which the frequency-selective amplitude-specific transmission channel characteristics of the transmission medium "radio channel" are determined from the receive symbols $es1 \dots n$ conducted to the channel estimation unit KS; i.e., the frequency-selective amplitude distortions (also called amplitude response or absolute value of the transfer function of the radio channel $|H(f)|$ caused by the transmission medium "radio channel" are determined for each subcarrier.

A cursory glance at FIG. 2 clearly shows symbols $es1 \dots n$ in the drawing.

Regarding DMT, it is not understood how this element relates to the subject matter claimed in the present invention.

Accordingly, in light of the arguments provided above, and the drawing amendments presented herein, Applicant submits that the drawing objections have been overcome and should be withdrawn.

Claims 23-25, 32, 36, 39 and 42 were rejected under 35 U.S.C. §102(e) as being anticipated by *Wu* (US Patent 6,389,062).

Claims 26, 27 and 37 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Wu* (US Patent 6,389,062) in view of *Kao* (US Patent 6,075,821).

Claims 28 and 29 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Wu* (US Patent 6,389,062) in view of *Aslanis* (US Patent 5,627,863).

Claim 35 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Wu* (US Patent 6,389,062).

Claim 39 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Wu* (US Patent 6,389,062) in view of *Marchok* (US Patent 5,790,514).

Claim 40 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Wu* (US Patent 6,389,062) in view of *Dobson* (US Patent 6,603,811).

Claim 41 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Wu* (US Patent 6,389,062) in view of *Hershey* (US Patent 5,844,949). Applicant traverses these rejections. Favorable reconsideration is respectfully requested.

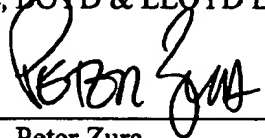
Claims 30, 31, 33, 34 and 38 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

Accordingly, claims 23 and 42 were amended to incorporate the subject matter of claim 30, which has been indicated as allowable. Applicants respectfully submit that the patent application is in condition for allowance and request a Notice of Allowance be issued.

The Commissioner is authorized to charge and credit Deposit Account No. 02-1818 for any fees associated with the submission of this Response, including any time extension fees. Please reference docket number 112740-229.

Respectfully submitted,
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Amendment to the Drawings:

The attached sheet of drawings includes changes to FIG. 2, which replaces the original sheet.

Attachment: Replacement Sheet